

Tennessee Pollution Prevention Partnership Success Story



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Cougars Measure Wasted Water, Adopt a Stream, and Cure Erosion

The Member

Centennial High School's Environmental Science classes, under the direction of Jeff Taylor, perform hands-on projects inside and outside the school. Through these projects, all three classes learn about the environment and the impacts people can have on the environment. The classes are broken down into 12 student-lead teams. Each team has specific environmental goals, such as recycling, litter pick-up, erosion control, research, public relations, the greenhouse, campus beautification, energy conservation, and the pond. These teams identify and work toward their goals all year to create a better environment on campus and in the local community.

The Story

This year, in addition to continuing campus erosion control, the classes decided to survey the school's water usage, research the sources and releases of the school's water, study the areas that use water on campus, and adopt a portion of the stream where campus stormwater discharges.

Since the opening of the school in 1996, Centennial High has been faced with erosion due to poor planning during construction. To avoid impending fines from the city, Lewis Bumpus of the county's solid waste department assisted Mr. Taylor's class to implement innovative ways to combat the erosion and pollution from Centennial's campus. The class installed coconut coir rolls to trap sediment; a Gabion basket and check dam to slow water flow; and berms decorated with school logos made out of crushed glass, old railroad ties, and mulch from storm-damaged trees. This completed our mission to use green alternatives.

The students learned that in 2000/2001 the county had installed flush valves on the toilets, aerators, and spring return buttons on the faucets, to increase water usage efficiency. Students did a comprehensive school water audit to find out how water is used in the kitchen, the restrooms, the air conditioning system, the fire sprinklers, and the irrigation system. They reviewed the annual water bills and determined how much money is spent each year. The students also checked for and found many leaks. They measured the water leaks during a specified time and calculated the loss. The students talked to the custodial crews and science and art teachers to make sure that chemicals were being properly disposed and not sent into the sewer. The class made about 400 fliers with water conservation tips, using recycled paper. These fliers were handed out to patrons of the local Sonic in their bags during lunch hour. The class also made a PTSO flier, educating students, faculty and parents about water conservation and the results of the school water audit.

The Harpeth River Watershed Association and the Mallory Valley Municipality told students that water conservation and quality in Franklin depends on many surrounding counties, because their water supply comes from the Cumberland River, which is not even in Williamson County. The classes then studied the watershed map and located a stream to adopt and monitor. The students tested the water quality of North Ewingville Creek, which receives all stormwater from the campus and surrounding businesses and homes.

The Success

The erosion control techniques put in place by students have done an excellent job trapping fine sediments and beautifying the school landscape.

Students found 24 faucets and 2 showerheads leaking, for a combined total of 66.7 gallons of water per day being wasted at their school. Due to their findings, the maintenance department plumbers showed the class how to repair a leaky faucet and then repaired the identified leaks. Students also discovered that the school's well system for irrigating the sports fields had blown the piping from the pump and was wasting well water on the ground instead of irrigating the fields. This problem was fixed immediately as well. They also learned that the irrigation system utilizes a rain meter so that sprinklers will not run if there has been a recent rain event.

Although Centennial had erosion problems in the past, students discovered that the portion of the creek they monitored was healthy, but is still listed as impaired due to problems on other segments of the stream. The Harpeth River Watershed Association is installing cedar tree revetments at locations where banks are unstable.

The Pollution Prevented

Previously, students were not aware of the importance of water conservation, but now they are. They stopped 66.7 gallons/day of water being wasted and sent to the sewage treatment plant and uncalculated amounts from the irrigation system. They are aware that pollutants poured on the ground go into the groundwater. The well for irrigation of the sports fields uses groundwater, instead of treated city water, which saves the school system money. The students control stormwater pollution with their erosion control projects and regular campus and highway litter pick-ups. Since they have adopted North Ewingville Creek, their commitment will continue on for years to come. By becoming aware of water conservation and teaching others about it, they have improved their environment.

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